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# US 641 Alternatives Study

## Reconstruction from the Tennessee State Line to KY 1550 in Murray, Kentucky

### Executive Summary

#### Introduction

The purpose of this Alternatives Study is to define and gather critical information on the US 641 project prior to the design phase. Specifically, the study will identify a preferred corridor for future design work from the Tennessee State Line to KY 1550 (Glendale Road) in Murray. The design phase is currently scheduled to begin in Fiscal Year 2002 (i.e., July 1, 2001 through July 30, 2002) for Priority Section 1 (Middle Fork of Clark's River to Glendale Road). The study is intended to examine options/alternates for the widening/improvement of US 641 in Calloway County and to consider possible impacts the project may have on transportation issues and cultural, historic and environmental resources. Significant components of this study include:

- \$ Defining project goals;
- \$ Identifying options/alternates for project location and design;
- \$ Discussing project needs and issues with public officials and government agencies and other groups with a special interest in the project;
- \$ Identifying known environmental concerns; and
- \$ Sharing information with the public.

US 641 is functionally classified as a Rural Principal Arterial and is on the National Highway System and the National Truck Network. US 641 connects I-24 in Kentucky (via the Purchase Parkway) through Murray (KY) and Paris (TN) to I-40 in Tennessee. Within Calloway County, US 641 is the north-south backbone of the transportation system linking major employment and population concentrations to commercial, educational and health service centers. In 2000, the Average Annual Daily Traffic (AADT) on US 641 ranged from 6,310 vehicles per day (vpd) around Hazel to 10,500 vpd in Murray. Between Hazel and Murray, traffic volumes range from 6,590 vpd to 8,440 vpd. These volumes are forecasted to increase 60 percent by the year 2025. Truck traffic on US 641 between the State Line and Murray is approximately 13 percent of total traffic, which is a slightly higher percentage than other rural non-interstate arterials in the state.

The project goals for the proposed project are to:

- \$ accommodate future traffic and trucks going to I-40 in Tennessee;
- \$ provide overall system connectivity and continuity by completing US 641 as a four-lane divided arterial from Murray to I-40;
- \$ increase safety and reduce accidents;
- \$ ensure future adequacy for forecasted traffic; and
- \$ provide an improved south corridor for commuters, shoppers, health service users, college students and truckers from Murray to US 79 south of Paris (TN).

#### Project History

The proposed improvement of US 641 in Calloway County grew out of local concerns about heavy truck traffic through the Study Area to I-40 in Tennessee and the adverse community impact of growing traffic in the corridor, especially through downtown Hazel. Additional concerns include the lack of safety along the

existing roadway due to narrow lanes and shoulders, and future capacity deficiencies. Accordingly, a planning study for US 641 was included in the Approved 2000-2002 Biennial Highway Construction Program and Identified Preconstruction Program Plan for FY 2003 through FY 2006 (generally referred to as the *KYTC 2000 Six Year Highway Plan*).

## Alternates Considered

Early coordination meetings were held with elected officials and other community leaders from Murray and Hazel on October 10, 2000, to discuss issues, concerns and needs for the project. At an Early Public Information Meeting on January 11, 2001, a presentation was made on the road building process, project goals, possible environmental issues (displayed in an environmental footprint of the Study Area), and project timeline. Based on completed questionnaires from the Early Public Information Meeting, a majority (54%) suggested relocation of US 641 west of the existing alignment south of the Middle Fork of Clark's River to the Tennessee State Line. Reconstruction of US 641 east of the existing alignment and along the existing alignment were also suggested.

From suggestions at the local officials and stakeholders meetings and the first public meeting, a do nothing (or no build) and two build alternates (the eastern and western alternates) were developed. At the Interdisciplinary Team meeting on March 23, 2001, a third "build" alternative was proposed and it was decided:

- to proceed with design for Priority Section 1 from the Middle Fork of Clark's River to KY 1550 along the existing alignment of US 641 because this was common to all build alternates, and
- to develop a third build alternate for reconstruction along the existing alignment of US 641 and present the no build and three build alternates for public comment at a second public meeting.

A second round of meetings were held with elected officials and other community leaders on August 16, 2001, to discuss the merits of the no build and three build alternates. The Second Public Information Meeting was held on August 16, 2001, at the Murray-Calloway County Judicial Building in Murray, Kentucky, to receive public comment. From the questionnaire distributed at the Second Public Information Meeting, a majority (68%) favored the western alternate (Alternate 2). At these meetings, it was suggested that a fourth alternate be investigated to serve existing businesses near Midway. The fourth alternate would involve reconstructing US 641 along the existing alignment from Murray to Midway and shifting westward to a new alignment south of Midway (the same route south of Midway as utilized by the eastern and western alternates). Thus, the no build and four build alternates were examined as shown in Figure ES-1.

Following is a discussion of the project alternates. Please note that the location on the map and the written descriptions are meant to be approximate representations for cost estimating and analysis purposes only. They are not meant to preclude the consideration of the other design options during future phases of project development.

## Do Nothing Alternate

The Do Nothing or "No Build" Alternate would maintain the present roadway system with no major improvements and a continuation of present maintenance activities. While the Do Nothing Alternate would not cause any environmental or community impact, nor require any major roadway investment, it would fail to accommodate future traffic volumes (particularly increased truck traffic), and would lead to increasing congestion problems, as well as greater noise, air pollution and vibration for historic structures through Hazel. Furthermore, the increased traffic is causing community disruption and resulting in negative impacts on community cohesion and character in Hazel.

Figure ES-1: Build Alternates

The advantages of the Do Nothing Alternate include no new financial expenditures, relocations, land use conflicts or environmental concerns associated with the build alternates. The disadvantages of the Do Nothing Alternate are associated with the failure to address project goals.

#### Alternate 1: Reconstruction West (Tennessee State Line to Midway) and East (Midway to Middle Fork of Clark's River) of Existing Alignment

The Eastern Alternate begins as a rural four-lane divided roadway at the Kentucky-Tennessee State Line west of Hazel, Kentucky, connecting to a proposed section of realigned US 641 in Tennessee. South of KY 1828 (Tobacco Road) at Midway, Alternate 1 swings eastward across existing US 641 and follows along the west bank of the East Fork of Clark's River (parallel to existing US 641). South of the Middle Fork of Clark's River, Alternate 1 returns to existing US 641, and begins transitioning from the rural four-lane typical section to an urban five-lane typical section. The urban five-lane section begins at the south end of the bridge over the Middle Fork of Clark's River and ends at the existing urban five-lane section of US 641 at KY 1550 (Glendale Road). Alternate 1 would probably include the construction of three new bridge structures – one two-lane structure in each direction over Brushy Creek (a small tributary of the East Fork of Clark's River near South Pleasant Grove Road) and one five-lane structure over the Middle Fork of Clark's River. With a length of 7.04 miles, Alternate 1 has an estimated project cost of \$35.5 million. To improve connections between Alternate 1 and existing US 641, improvements would be considered to KY 893 (State Line Road), Miller Street, KY 1828 (Tobacco Road), and Barber Road (about \$ 0.7 million).

#### Alternate 2: Reconstruction West of Existing Alignment

The Western Alternate begins at the same location on the State Line with the same rural four-lane divided roadway section as Alternate 1, and follows along the same corridor to the point where Alternate 1 turns eastward. From this point, just south of Midway, Alternate 2 continues northward and follows along the location of an underground pipeline tying into existing US 641 just south of the Middle Fork of Clark's River. From this point, Alternate 2 is identical to Alternate 1, beginning the urban five-lane section at the bridge and continuing north along existing US 641 to its intersection with KY 1550. Alternate 2 would likely include the construction of three new bridge structures – one two-lane structure in each direction over Brushy Creek (a small tributary of the East Fork of Clark's River near South Pleasant Grove Road) and one five-lane structure over the Middle Fork of Clark's River. With a length of 6.85 miles, Alternate 2 has an estimated project cost of \$35.8 million. To improve connections between Alternate 2 and existing US 641, improvements would be considered to KY 893 (State Line Road), Miller Street, KY 1828 (Tobacco Road), and Barber Road (about \$1.0 million).

#### Alternate 3: Reconstruction Along Existing Alignment (From north of Hazel to KY 1550)

The Middle Alternate begins at the same location on the State Line with the same rural four-lane divided roadway section as Alternates 1 and 2, and follows along the same corridor to the northwest of Hazel where Alternate 3 turns eastward to join existing US 641 south of Brushy Creek. From this point, Alternate 3 follows the existing alignment of US 641 south of KY 1828 (Tobacco Road) near Midway and begins transitioning from the rural typical section to the urban five-lane typical section. At KY 1828 (Tobacco Road) near Midway, Alternate 3 continues as an urban five-lane typical section approximately along existing US 641 ending at its intersection with KY 1550 (Glendale Road). Alternate 3 would probably include the construction of three new bridge structures – one two-lane structure in each direction over Brushy Creek (a small tributary of the East Fork of Clark's River near South Pleasant Grove Road) and one five-lane structure over the Middle Fork of Clark's River. With a length of 6.75 miles, Alternate 3 has an estimated project cost of \$42.7 million. To improve connections between Alternate 3 and existing US 641, improvements would be considered to KY 893 (State Line Road) and Miller Street (about \$0.4 million).

#### Alternate 4: Reconstruction Along Existing Alignment (From Midway to KY 1550)

The Western-Middle Alternate begins at the same location on the State Line with the same rural four-lane divided roadway section as Alternates 1, 2 and 3, and follows along the same corridor as Alternatives 1 and 2 to south of KY 1828 (Tobacco Road) at Midway. From this point, Alternate 4 swings eastward to join existing US 641 south of Midway, transitioning from the rural typical section to the urban five-lane typical section. At KY 1828 (Tobacco Road) near Midway, Alternate 4 (like Alternate 3) continues as an urban five-lane typical section along existing US 641 ending at its intersection with KY 1550 (Glendale Road). Alternate 4 would also include the construction of three new bridge structures – one two-lane structure in each direction over Brushy Creek (a small tributary of the East Fork of Clark's River near South Pleasant Grove Road) and one five-lane structure over the Middle Fork of Clark's River. With a length of 6.83 miles, Alternate 4 has an estimated project cost of \$40.0 million. To improve connections between Alternate 4 and existing US 641, improvements would be considered to KY 893 (State Line Road) and Miller Street (about \$0.4 million).

#### Recommendations

At the KYTC Interdisciplinary Team meeting on January 8, 2002, **Alternate 2 (the Western Alternate) was chosen as the preferred alternate**. This alternate best achieves project goals, minimizes potential residential and business displacements, minimizes other environmental concerns (with the exception of prime farmland), is among the lowest in total project cost, disrupts the least local utilities, minimizes traffic maintenance costs, provides the greatest flexibility in adjusting the final alignment to avoid problems, includes improved connections to existing US 641 (as requested in virtually all public comments), and is favored by the public. Two other projects are proposed in conjunction with the US 641 project as follows:

- The improvement and extension of Barber Road is important to serve the Calloway County School Board bus compound, Taylor Truck Sales and Paschall Truck Lines in Midway.
- The improvement of an east-west road to the center of Hazel with appropriate signage on new US 641 concerning the commercial activities in Hazel is of the utmost importance to the community of Hazel.

Finally, access points should be a minimum of 1,200 feet on the rural segment, a minimum of 600 feet on the portion of the urban section where driveways do not presently exist, and controlled by permit on the urban segment near KY 1550 where present driveways are more closely spaced than 600 feet.

Table ES-1 shows the cost estimates for the preferred alternate by priority section. The three priority sections run from north to south consistent with the *KYTC Year 2000 Six Year Highway Plan*. Priority Section 1 from KY 1550 to the Middle Fork of Clark's River is presently under design. Priority Section 2 runs from the Middle Fork of Clark's River to south of Midway (just south of KY 1828 (Tobacco Road), and was proposed for design in FY 2005 in the *KYTC Year 2000 Six Year Highway Plan*. Priority Section 3 runs from Midway (KY 1828) to the Tennessee State Line. The Tennessee Department of Transportation intends to begin surveying their section of US 641 near the State Line in the next two years, and will reconstruct US 641 northward from Paris to meet Kentucky at the State Line near Hazel.

**Table ES-1: US 641 Reconstruction Preferred Alternate Project Cost Estimates  
by Priority Section**

<b>Priority Section</b>	<b>Termini</b>	<b>Length (miles)</b>	<b>Design</b>	<b>Right-Of- Way</b>	<b>Utilities</b>	<b>Construction</b>	<b>Totals*</b>
3	State Line to KY 1828	3.03	\$610,000	\$920,000	\$500,000	\$8,990,000	\$11,020,000
2	KY 1828 to Middle Fork	2.81	\$880,000	\$1,550,000	\$900,000	\$1,174,000	\$15,070,000
1	Middle Fork to KY 1550	1.01	\$410,000	\$1,430,000	\$2,000,000	\$5,870,000	\$9,710,000
1-3	State Line to KY 1550	6.85	\$1,900,000	\$3,900,000	\$3,400,000	\$2,660,000	\$35,800,000

Source: Bernardin, Lochmueller and Associates, Inc.

Note: \*Suggested Connection (Crossroad) Improvements amount to about \$1,000,000 representing \$620,000 in additional design and construction costs for Priority Section 2 and \$380,000 in additional design and construction costs for Priority Section 3. (Design costs at about 7%.)